

REMARKS

The Office Action dated February 26, 2007 has been received and carefully noted. The above amendments to the claims, and the following remarks, are submitted as a full and complete response thereto.

Claims 1, 6 and 10 have been amended to more clearly define the invention. No new matter has been added. Claims 1-13 are submitted for consideration.

Claims 1-13 were rejected under 35 U.S.C. 112, second paragraph, as being indefinite. According to the Office Action, there is insufficient antecedent basis for the limitation “**the header cell** of the data packet”. Each of the pending claims, in part, recites a data packet comprising a plurality of cells including a header cell, wherein **the header cell of the plurality of cells** comprises a header and packet data information. Thus, each of the pending claims clearly recites that the data packet includes multiple cells, one of which is a header cell. The interpretation on page 3 of the Office Action that the claims can be interpreted to include a plurality of cells including one or more header cells is clearly inaccurate. The claims do not recite that each of the plurality of cells includes a header cell. Instead, the claims recite that the data packet comprises a plurality of cells including a header cell. Applicant submits that claims 1, 6 and 10 have been further amended to clearly recite that the header cell is one of the plurality of cells of the data packet. Based on the amendment to claims 1, 6 and 10, Applicant submits that there is sufficient antecedent basis for the limitation “**the header cell** of the data packet” and

requests that the rejection be withdrawn.

The Office Action also alleged that the recitation of the claims of determining whether **the header cell** of the data packet contains a multiple of a predetermined number of bytes after the header has been removed from the header cell is unclear as to whether the determining is with respect to the header or the packet data information. Each of the pending claims clearly recites determining if **the header cell** has a multiple of a predetermined number of bytes **after the header has been removed from the header cell**. Therefore, Applicant submits that this claim element is not ambiguous, as alleged by the Office Action.

The Office Action also alleged that the elements of 1, of inserting null bytes into the header cell of the data packet to form a modified header cell of the data packet if the counter determines that the header cell of the data packet does not satisfy the multiple of the predetermined number of bytes, is unclear as to whether the inserting is with respect to the header or the packet data information of the header cell. Each of the pending claims clearly recites inserting null bytes into the header cell of the data packet to form a modified header cell of the data packet. As recited in the claims, and disclosed in the specification, the null bytes are not limited to being inserted in one portion of the header cell, as long as the null bytes are inserted into the header cell. Therefore, Applicant submits that the Office Action is attempting to unnecessarily limit the claims by requiring that the claims recite that the null bytes are inserted into a specific portion of the header

cell. Based on the arguments presented above and the amendments to claims 1, 6 and 10, Applicant requests that the rejection be withdrawn.

Claims 1-4, 6-8 and 10-12 were rejected under 35 U.S.C. 103(a) as being obvious over European Patent No. 0 572 145 to Thompson (hereinafter Thompson) in view of U.S. Patent No. 6,512,773 to Scott (hereinafter Scott) and further in view of U.S. Patent No. 7,139,271 to Parruck (hereinafter Parruck). According to the Office Action, Thompson teaches all of the elements of claims 1-4, 6-8 and 10-12 except for a data packet including a plurality of cells including a header cell, wherein the header cell of the plurality of cells includes a header and a packet data portion and a counter to determine the number of bytes of a packet after the header has been removed. Thus, the Office Action uses Scott and Parruck to cure the deficiencies of Thompson to yield the combination of elements recited in claims 1-4, 6-8 and 10-12. The rejection is traversed as being based on references that neither teaches nor suggests the novel combination of features clearly recited in claims 1-4, 6-8 and 10-12.

Claim 1, upon which claims 2-5 depend, recites a network device that is configured to prevent data misalignment of a data packet containing extra header bytes. The network device includes an ingress module having an input interface to receive a data packet including a plurality of cells. A header cell of the data packet is one of the plurality of cells of the data packet. The header cell of the plurality of cells includes a header and packet data information, and a header detector configured to detect the header

cell of the data packet and remove the header from the header cell of the data packet. The network device also includes a counter configured to determine whether the header cell of the data packet contains a multiple of a predetermined number of bytes after the header has been removed from the header cell. The network device further includes an insertion module configured to insert null bytes into the header cell of the data packet to form a modified header cell of the data packet if the counter determines that the header cell of the data packet does not satisfy the multiple of the predetermined number of bytes. The network device also includes an extraction module configured to remove the null bytes from the modified header cell of the data packet as a modified cell of the data packet exits the network device.

Claim 6, upon which claims 7-9 depend, recites a method of preventing data misalignment of a data packet containing extra header bytes. The method includes receiving, at an input port of a network device, a data packet including a plurality of cells. A header cell of the data packet is one of the plurality of cells of the data packet. The header cell of the plurality of cells includes a header and packet data information, and detecting the header cell of the data packet. The method also includes removing the header from the header cell of the data packet and determining whether the header cell of the data packet contains a multiple of a predetermined number of bytes after the header has been removed from the header cell. The method further includes inserting null bytes into the header cell of the data packet to form a modified header cell of the data packet if

the counter determines that the header cell of the data packet does not satisfy the multiple of the predetermined number of bytes and forwarding the modified cell of the data packet to an output port. The method also includes removing the null bytes from the modified header cell of the data packet as a modified cell of the data packet exits the network device.

Claim 10, upon which claims 11-13 depend, recites a network device configured to prevent data misalignment of a data packet containing extra header bytes. The network device includes receiving means for receiving, at an input port of a network device, a data packet including a plurality of cells. A header cell of the data packet is one of the plurality of cells of the data packet. The header cell of the plurality of cells includes a header and packet data information. The network device also includes detecting means for detecting the header cell of the data packet. The network device also includes header removing means for removing the header from the header cell of the data packet and determining means for determining whether the header cell of the data packet contains a multiple of a predetermined number of bytes after the header has been removed from the header cell. The network device further includes inserting means for inserting null bytes into the header cell packet to form a modified header cell of the data packet if the counter determines that the cell of the data packet does not satisfy the multiple of the predetermined number of bytes and forwarding means for forwarding the modified cell of the data packet to an output port. The network device also include null

byte removing means for removing the null bytes from the modified header cell of the data packet as a modified cell of the data packet exits the network device.

As will be discussed below, the cited prior art references of Thompson and Scott fail to disclose or suggest the elements of any of the presently pending claims.

Thompson teaches a computer system with a processor, a cache, a memory and a network adapter. The network adapter generates and inserts network data checksums. In the outbound direction, the processor provides checksum control information to the network adapter and the network adapter calculates the checksum and inserts the checksum into the proper location within the packet before transmitting the packet on the network. In the inbound direction, the network adapter decodes the packet header, programs the checksum control information directly into internal registers, calculates the checksum and inserts the checksum into the proper location within the packet before transmitting the packet on the memory. The network adapter also automatically separates headers and data during transfer of incoming packets from the adapter to the memory. The network data further performs alignment of network headers by inserting pad bytes based on specific values found in the network link header. Col. 3, line 1-Col 4, line 50.

The network adapter is connected to the network through a front plane controller that provides transmission and reception of data packets to and from the network. For outbound transfers, the front plane controller unpacks the words from a DMA bus, looks at the first byte of the output stream, which contains a count of how many pad bytes were

inserted in the packet and strips off the pad bytes. Col. 6, lines 35-46.

Scott teaches an improved system and method for transporting information over a communication channel. Scott uses a first frame 100 which includes a payload that includes user data PDU to which is prepended by a 4-octet ATM header that indicates that the frame is a low overhead cell frame. A trailer is also appended to the frame. Col. 8, lines 18-37. Scott also uses a second frame 150 which includes one of a plurality of 52-octet ATM cells to which is added a header, which indicates that the payload is framed cells, and a trailer. Col. 9, lines 10-27. The system includes a central transceiver which receives either frame 100 or 150 from a remote transceiver over a subscriber line. Figure 5C illustrates the steps performed at the central processor to implement a SAR (segmentation and reassembly) process. First, the payload is processed from frame 100 (block 231) and the number of octets of the user data PDU of the payload is counted (block 232). A user-to-user field and a common part indicator field are formed for the AAL5 frame (block 234). If the user-to user field and the common part indicator field are not included in the header or trailer, the default "0" is used. Pad characters are added to make the AAL5 frame equal an integer number of 48 octet cells (block 236). The 32-bit cyclic redundancy check of the AAL5 frame is calculated (block 237) and the AAL5 frame is segmented into an integer number of 48 octet cells (block 238). Thereafter, the ATM header from the payload is extracted (block 239). A HEC is added to the 4 octet ATM header to form a 5 octet ATM header (block 241) which is prepended to the 48

octet cells (block 242). Col. 10, lines 16-58.

Parruck discloses that a multi-service segmentation and reassembly (MS-SAR) integrated circuit is disposed on a line card in a router or switch. The MS-SAR can operate in an ingress mode so that it receives packet and/or cell format data and forwards that data to either a packet-based or a cell-based switch fabric. The MS-SAR can also operate in an egress mode so that it receives data from either a packet-based or a cell-based switch fabric and outputs that data in packet and/or cell format. The MS-SAR has a data path through which many flows of different traffic types are processed simultaneously. Each flow is processed by functional blocks along the data path in accordance with one of several application types, the application type for a flow being predetermined by the host processor of the router or switch. Segmentation, reassembly and partitioning techniques are disclosed that reduce costs and facilitate high-speed operation. See at least the Abstract.

Applicants submit that the combination of Thompson, Scott and Parruck simply does not teach or suggest the combination of features clearly recited in the pending claims. Each of independent claims 1, 6 and 10, in part, recite an ingress module having an input interface to receive a data packet including a plurality of cells, where a header cell of the data packet is one of the plurality of cells and the header cell of the plurality of cells includes a header and packet data information. Each of independent claims 1, 6 and 10 also recites, in part, inserting null bytes into **the header cell of the data packet to form a modified header cell** of the data packet if the counter determines that the header

cell of the data packet does not satisfy the multiple of the predetermined number of bytes and removing the null bytes from the modified header cell of the data packet as a modified cell of the data packet exits the network device. Thompson does not teach or suggest these features.

The Office Action alleges that Thompson discloses inserting null bytes into the cell of the data packet to form a modified cell of the data packet if the CPU determines that the header/data split is not on an even byte boundary. However, Applicant submits that there is no teaching or suggestion in Thompson of a packet that includes a plurality of cells, such that a header cell is one of the plurality of cells, with the header cell including a header and packet information. Thus, there is no teaching or suggestion in Thompson of modifying only the **header cell** of the packet in order to align all of the other cells of the packet. Thompson merely teaches that the network adapter splits that packet data from the header and pads the data to ensure that the beginning of the data portion of the packet is aligned with a memory page portion. See at least Col. 4, lines 25-33 of Thompson. Thompson also discloses that the network adapter aligns the headers of the header portion of the packet by inserting pad bytes based on specific values found in the network link header. Nevertheless, Thompson simply does not teach or suggest inserting null bytes into the **header cell** of the data packet to form a modified header cell of the data packet if the counter determines that the header cell of the data packet does not satisfy the multiple of the predetermined number of bytes, as recited in claims 1, 6

and 10.

The Office Action also correctly indicated that Thompson does not teach or suggest the counter recited in claims 1, 6 and 10, but cites Scott as curing this deficiency. Scott does not cure the deficiencies of Thompson, as noted above. There is simply no teaching or suggestion in Scott of inserting null bytes into the **header cell** of the data packet to form a modified header cell of the data packet if the counter determines that the header cell of the data packet does not satisfy the multiple of the predetermined number of bytes, as recited in claims 1, 6 and 10. Figure 4 and Col. 10, lines 15-50 of Scott merely disclose that a frame includes a header portion and a payload portion. There is no teaching or suggestion in Scott of dividing the frame into a number of cells, with the header cell including header and data portions. As such, there is no teaching or suggestion in Scott of inserting null bytes into the **header cell** of the data packet to form a modified header cell of the data packet if the counter determines that the header cell of the data packet does not satisfy the multiple of the predetermined number of bytes, as recited in claims 1, 6 and 10.

Parruck also does not cure any of the deficiencies of Scott and Thompson. Specifically, Parruck does not teach or suggest receiving a data packet including a plurality of cells, where a header cell of the data packet is one of the plurality of cells and the **header cell of the plurality of cells includes a header and packet data information**. Parruck also does not teach or suggest inserting null bytes into the header

cell of the data packet to form a modified header cell of the data packet if the counter determines that the header cell of the data packet does not satisfy the multiple of the predetermined number of bytes and removing the null bytes from the modified header cell of the data packet as a modified cell of the data packet exits the network device. The cited sections of Parruck merely disclose that a large ATM cell is divided into individual cells, each of the individual cells including a header and a payload portion. There is no teaching or suggestion in Parruck of a header cell being one of a plurality of cells in a data packet, where the header cell includes a header and packet data information. Therefore, Applicants respectfully assert that the rejection under 35 U.S.C. §103(a) should be withdrawn because neither Thompson, Scott nor Parruck, whether taken singly or combined, teaches or suggests each feature of claims 1, 6 and 10, and hence dependent claims 2-4, 7-8 and 11-12 thereon.

Claims 5, 9 and 13 were rejected under 35 U.S.C. 103(a) as being obvious over Thompson in view of Scott and further in view of U.S. Patent No. 6,697,873 B1 to Yik. According to the Office Action, Thompson, Scott and Parruck teach all of the elements of claims 5, 9 and 13 except for teaching that the medium access control protocol module has a MAC address for transmitting the modified cell of the data packet and a layer two switching module configured to build a table for forwarding rules upon which the MAC address exists. Therefore, the Office Action combined the teachings of Yik with Thompson, Scott and Parruck to yield all of the elements of claims 5, 9 and 13. The

rejection is traversed as being based on references that neither teaches nor suggests the novel combination of features clearly recited in independent claims 1, 6 and 10, upon which claims 5, 9 and 13 depend.

Yik also does not cure the deficiencies of Thompson, Scott and/or Parruck, as outlined above. Yik teaches an apparatus and method for storing and searching computer node addresses in a computer network system. Each of claims 5, 9 and 13 depend on claims 1, 6 and 10 respectively, and thus, incorporates all of the elements of the independent claims.

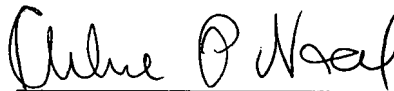
There is simply no teaching or suggestion in Yik of receiving a data packet including a plurality of cells, where a header cell of the data packet is one of the plurality of cells and the **header cell of the plurality of cells includes a header and packet data information**. Yik also does not teach or suggest inserting null bytes into the header cell of the data packet to form a modified header cell of the data packet if the counter determines that the header cell of the data packet does not satisfy the multiple of the predetermined number of bytes and removing the null bytes from the modified header cell of the data packet as a modified cell of the data packet exits the network device, as recited in claims 1, 6 and 10. Therefore, Applicants respectfully assert that the rejection under 35 U.S.C. §103(a) should be withdrawn because neither Thompson, Scott, Parruck nor Yik, whether taken singly or combined, teaches or suggests each feature of claims 1, 6 and 10 and hence dependent claims 5, 9 and 13, thereon.

As noted previously, claims 1-13 recite subject matter which is neither disclosed nor suggested in the prior art references cited in the Office Action. It is therefore respectfully requested that all of claims 1-13 be allowed and this application passed to issue.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, the applicant's undersigned attorney at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, the applicant respectfully petitions for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,



Arlene P. Neal
Registration No. 43,828

Customer No. 32294
SQUIRE, SANDERS & DEMPSEY LLP
14TH Floor
8000 Towers Crescent Drive
Tysons Corner, Virginia 22182-2700
Telephone: 703-720-7800
Fax: 703-720-7802

APN:ksh